Course: 8402 HOLDING TANK QUIZ $55.00

This course is valid for these credentials:

Credential Description	Cred Code	Credit Hours
Journeyman Plumber	PJ	6.0
Journeyman Plumber-Restricted Service	PJRS	6.0
Master Plumber	PM	6.0
Master Plumber-Restricted Service	PMRS	6.0
POWTS Inspector	PI	6.0
POWTS MAINTAINER	PO	6.0
Soil Tester	ST	6.0

Instructions: 1. Print these pages.
2. Scroll down to page 12 for additional instructions.
3. The Holding Tank manual is included and starts on pages 13.

HOLDING TANK COMPONENT QUIZ

I. INTRODUCTION AND SPECIFICATIONS

1. This Private Onsite Wastewater Treatment System (POWTS) component manual provides design, construction, inspection, operation, and maintenance specifications for a holding tank component. However, these items must accompany a properly prepared and reviewed plan acceptable to the governing unit to help provide a system that can be installed and function properly. Violations of this manual constitute a violation of chs. Comm 81 and 82, Wis. Adm. Code.
   A. True
   B. False
2. Detailed plans and specifications must be developed, and submitted for review and approval by the governing unit having authority over the plan for the installation. Also a Sanitary Permit may be obtained from the department or governmental unit having jurisdiction.
   A. True
   B. False

Table 1
SIZE AND ORIENTATION

3. Holding capacity for a holding tank shall?
   A. ≥ 5 times design daily wastewater flow or 2000 gals, whichever is greater.
   B. Meets s. Comm 83.43 (9) (i), Wis. Adm. Code.
   C. ≥25 feet to service drive or road measured from service access opening or pump out port.
   D. None of the above.
4. Horizontal setback shall?
   A. ≥ 5 times design daily wastewater flow or 2000 gals, whichever is greater.
   B. Meets s. Comm 83.43 (8) (i), Wis. Adm. Code.
   C. ≥25 feet to service drive or road measured from service access opening or

pump out port.
D. None of the above.

5. Location to service access shall?
   A. ≥ 5 times design daily wastewater flow or 2000 gals, whichever is greater.
   B. Meets s. Comm 83.43 (9) (i), Wis. Adm. Code.
   C. ≥25 feet to service drive or road measured from service access opening or pump out port.
   D. None of the above.

Table 2
OTHER SPECIFICATIONS

6. Tank design and construction shall?
   A. Meets ch. Comm 84.25.
   B. ≥ 1 opening having an inside diameter of at least 8 inches.
   C. Meets s. Comm 83.43 (9) (e), Wis. Adm. Code
   D. Meets s. Comm 83.43 (9) (g), Wis. Adm. Code and the weight of anchor is ≥ 1.5 x tank volume in cubic feet x 62.4 pounds per cubic foot - weight of tank.
   E. In accordance with ch. Comm 83, Wis. Adm. Code
   F. In accordance with ch. Comm 83, Wis. Adm. Code and this manual
   G. Meets s. Comm 83.54 (2), Wis. Adm. Code
7. Vent location and orientation shall?
   A. Meets ch. Comm 84.25.
   B. Meets s. Comm 82.31(16)(d)2. and s. Comm 83.45(6)(b), Wis. Adm. Code. Vent openings are oriented down.
   C. Meets s. Comm 83.43 (9) (e), Wis. Adm. Code
   D. Meets s. Comm 83.43 (9) (g), Wis. Adm. Code and the weight of anchor is ≥ 1.5 x tank volume in cubic feet x 62.4 pounds per cubic foot - weight of tank.
   E. In accordance with ch. Comm 83, Wis. Adm. Code
   F. In accordance with ch. Comm 83, Wis. Adm. Code and this manual.
   G. Meets s. Comm 83.54 (2), Wis. Adm. Code
8. Alarms or warning system shall?
   A. Meets ch. Comm 84.25.
   B. ≥ 1 opening having an inside diameter of at least 8 inches.
   C. Meets s. Comm 83.43 (8) (e), Wis. Adm. Code
   D. Meets s. Comm 83.43 (9) (g), Wis. Adm. Code and the weight of anchor is ≥ 1.5 x tank volume in cubic feet x 62.4 pounds per cubic foot - weight of tank.
   E. In accordance with ch. Comm 83, Wis. Adm. Code
   F. In accordance with ch. Comm 83, Wis. Adm. Code and this manual.
   G. Meets s. Comm 83.54 (2), Wis. Adm. Code
9. Water meters shall?
   A. Meets ch. Comm 84.25.
   B. ≥ 1 opening having an inside diameter of at least 8 inches.
   C. Meets s. Comm 83.43 (9) (e), Wis. Adm. Code
   D. Meets s. Comm 83.43 (9) (g), Wis. Adm. Code and the weight of anchor is ≥ 1.5 x tank volume in cubic feet x 62.4 pounds per cubic foot - weight of tank.
   E. In accordance with ch. Comm 83, Wis. Adm. Code
   F. In accordance with ch. Comm 83, Wis. Adm. Code and this manual

G. Meets s. Comm 83.54 (2), Wis. Adm. Code

10. Installation in periodic or saturated soils shall?
    A. Meets ch. Comm 84.25.
    B. ≥ 1 opening having an inside diameter of at least 8 inches.
    C. Meets s. Comm 83.43 (9) (e), Wis. Adm. Code
    D. Meets s. Comm 83.43 (8) (g), Wis. Adm. Code.
    E. In accordance with ch. Comm 83, Wis. Adm. Code
    F. In accordance with ch. Comm 83, Wis. Adm. Code and this manual
    G. Meets s. Comm 83.54 (2), Wis. Adm. Code
11. Installation inspection shall?
    A. Meets ch. Comm 84.25.
    B. ≥ 1 opening having an inside diameter of at least 8 inches.
    C. Meets s. Comm 83.43 (9) (e), Wis. Adm. Code
    D. Meets s. Comm 83.43 (9) (g), Wis. Adm. Code and the weight of anchor is ≥ 1.5 x tank volume in cubic feet x 62.4 pounds per cubic foot - weight of tank.
    E. In accordance with ch. Comm 83, Wis. Adm. Code
    F. In accordance with ch. Comm 83, Wis. Adm. Code and this manual
    G. Meets s. Comm 83.54 (2), Wis. Adm. Code
12. Management shall?
    A. Meets ch. Comm 84.25.
    B. ≥ 1 opening having an inside diameter of at least 8 inches.
    C. Meets s. Comm 83.43 (9) (e), Wis. Adm. Code
    D. Meets s. Comm 83.43 (9) (g), Wis. Adm. Code and the weight of anchor is ≥ 1.5 x tank volume in cubic feet x 62.4 pounds per cubic foot - weight of tank.
    E. In accordance with ch. Comm 83, Wis. Adm. Code
    F. In accordance with ch. Comm 83, Wis. Adm. Code and this manual.
    G. Meets s. Comm 83.54 (2), Wis. Adm. Code

II. DEFINITIONS

13. "Cobbles" means?
    A. rock fragments greater than 3 inches, but less than 10 inches in diameter.
    B. the individual or company that is responsible for managing and maintaining the holding tank system.
    C. rock fragments greater than 10 inches in diameter, but less than 24 inches.
    D. gravel or paved surface that can support a fully loaded pump truck in all seasons.
14. "Service provider" means?
    A. rock fragments greater than 3 inches, but less than 10 inches in diameter.
    B. the individual or company that is responsible for managing and maintaining the holding tank system.
    C. rock fragments greater than 10 inches in diameter, but less than 24 inches.
    D. gravel or paved surface that can support a fully loaded pump truck in all seasons.
15. "Stones" means?
    A. rock fragments greater than 3 inches, but less than 10 inches in diameter.

B. the individual or company that is responsible for managing and maintaining the holding tank system.
C. rock fragments greater than 10 inches in diameter, but less than 24 inches.
D. gravel or paved surface that can support a fully loaded pump truck in all seasons.

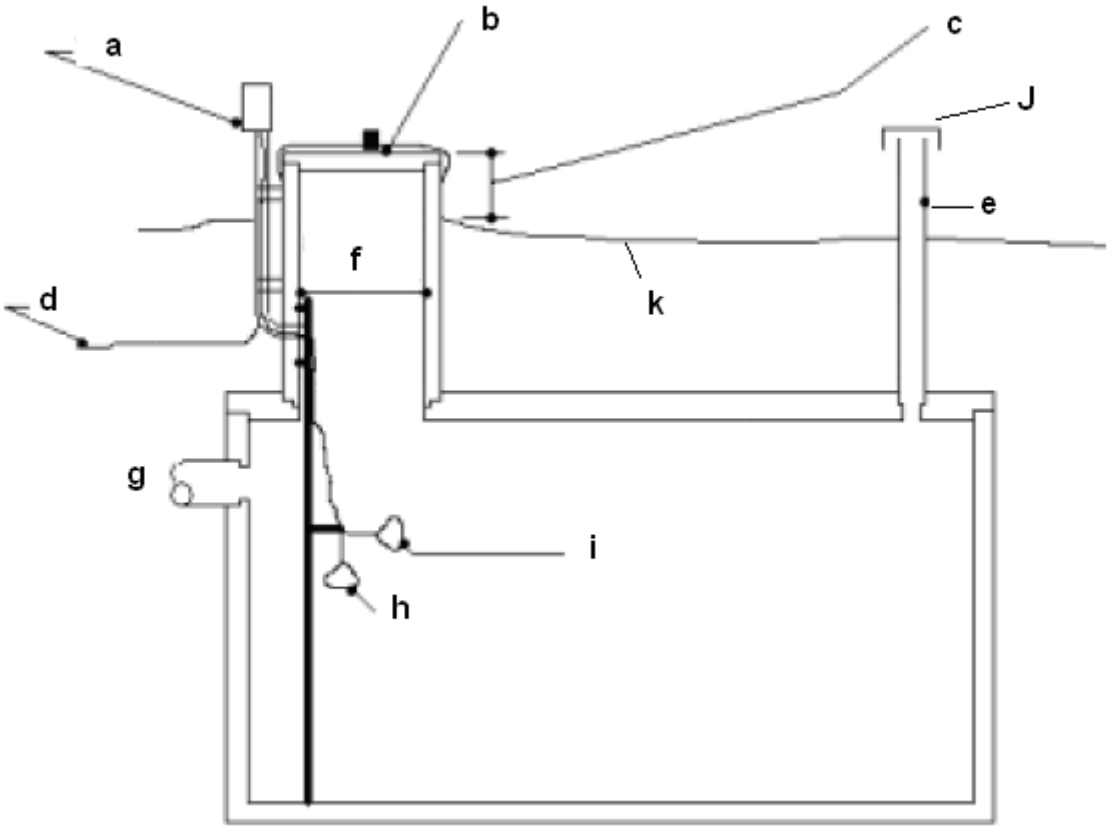
16. "All weather road" means?
A. rock fragments greater than 3 inches, but less than 10 inches in diameter.
B. the individual or company that is responsible for managing and maintaining the holding tank system.
C. rock fragments greater than 10 inches in diameter, but less than 24 inches.
D. gravel or paved surface that can support a fully loaded pump truck in all seasons.

III. DESCRIPTION AND PRINCIPLE OF OPERATION

17. The POWTS holding tank serves to contain wastewater or sewage on site until the contents is pumped and hauled to a proper point of disposal. Pumping and monitoring reports are submitted to the department or designated agent.
A. True
B. False

18. The holding tank installed under this component manual holds domestic wastewater, stormwater or clearwater inclusions permitted under s. Comm 82.36, Wis. Adm. Code, until pumped by an individual certified as a septage servicing operator under ch. NR 114, Wis. Adm. Code.
A. True
B. False

Figure 1 – Cross-Section of Holding Tank
Use diagram for questions 18-26



19. Letter ‘a’ represents _____

20. Letter ‘b’ represents _____

21. Letter ‘c’ represents _____

_____

22. Letter ‘d’ represents _____

23. Letter ‘e’ represents _____

24 Letter ‘f’ represents _____

25. Letter ‘g’ represents _____

26. Letter ‘h’ represents _____

27. Letter ‘i’ represents _____

28. Letter ‘j’ represents _____

29. Letter ‘k’ represents _____

IV. DESIGN

30. One- and Two-family Dwellings. Minimum liquid capacity of a holding tank for one- and two family dwelling application must not be less than 2000 gallons or 5 times the estimated daily wastewater flow determined in accordance with s. Comm 83.42 (3), (4), or (5), Wis. Adm. Code, whichever is greater.
    A. True
    B. False
31. Public Facilities. The minimum liquid capacity of a holding tank for public facilities shall not be less than 2000 gallons or 5 times the estimated daily wastewater flow determined in accordance with s. Comm 83.43(6), Wis. Adm. Code or Table 3 whichever is greater. Estimated flows for facilities not listed in Table 3 shall be provided pursuant to s. Comm 83.43(6), Wis. Adm. Code.
    A. True
    B. False

B. Tank Anchoring

32. When a holding tank may be installed in saturated soils (see ch. Comm 85, Wis. Adm. Code, For information on how to determine soil saturation) and/or in an area that is considered part of a 1000 year flood plain, the tank shall meet the provisions of s. Comm 83.43(8)(g), Wis. Adm. Code.
    A. True
    B. False

C. Monitoring/Management Equipment.

33. The alarm for the holding tank installation is an audible and/or visual alarm installed in a conspicuous location in or on the building served or on a post near the tank. The alarm is connected to a float switch or other electrical sensor in the holding tank. The maximum alarm on level is set at 10 inches below the tank inlet when only one tank is used or 80% of the total volume of the tankage when more than one tank is used.
    A. True
    B. False

V. SITE PREPARATION AND CONSTRUCTION

A. Sanitary Permit:

34. Prior to the construction of the system, a state sanitary permit shall be obtained and posted in a clearly visible location on the site. Arrangements for inspection(s) must be made with the property owner that was issued the state sanitary permit. When a POWTS is located or will be located on property owned by the state, the sanitary permit shall be obtained from the department. Arrangements for inspection(s) shall be made with the department.
    A. True
    B. False

B. Site Preparation and Tank Installation:

35. The holding tank must be installed in accordance with the manufacturers printed instructions, product approval, plan approval and specifications in this component manual. If there is a conflict between the manufacturer's instructions and the product approval, plan approval and/or component manual specifications, the product approval, plan approval and/or component manual specifications take precedence.
    A. True
    B. False
36. Access openings that terminate at grade and/or less than 1 ft. above the established regional flood elevation (if applicable) must have water tight access openings. Access openings that terminate at least 4 inches above the surrounding grade and 1 ft. above the established regional flood elevation (if applicable) are not required to have water tight access openings.
    A. True
    B. False
37. Access opening covers that terminate at or above grade may be provided with a service port that is 18 inches inside diameter. The reduced opening must have a locking device or a brass cleanout plug. Service ports larger than 18 inches inside diameter must have a locking device in accordance with s. Comm 84.25(7)(h), Wis. Adm. Code.
    A. True
    B. False
38. All access openings shall be located so as to permit a minimum of 3 feet of clear space above the opening and 2 feet in all directions horizontally from any point of the access opening for purposes of inspection, maintenance or servicing. Access openings within 12 feet of any building shall also be air tight.
    A. True
    B. False
39. The connection of the holding tank to the sanitary sewer shall be by means of a mechanical joint, solvent cement joint or other joint conforming to s. Comm 84.40, Wis. Adm. Code.
    A. True
    B. False
40. Below grade connections. Joints between the tank, access opening risers, and covers shall be watertight.
    A. True
    B. False

C. Alarm Equipment Installation:

41. The alarm switch shall be set to activate an alarm when liquid volume is 10" below the tank inlet invert or at 80% of the liquid capacity of the tank below the tank inlet invert.
    A. True
    B. False
42. All wiring shall be installed in accordance with National Electrical Code (NEC) Article 200 and s. Comm 17.23, Wis. Adm. Code.
    A. True
    B. False

D. Backfill

43. The holding tank excavation is backfilled as per manufacturer instructions with sufficient soil material, so as to divert surface water runoff towards the tank location.
    A. True
    B. False

VI. OPERATION, MAINTENANCE and PERFOMANCE MONITORING

A. Owner is Responsible:

44. The POWTS owner is responsible for the operation and maintenance of the POWTS locking device, alarm and access opening. The owner or owner's agent is required to submit reports as required by s. Comm 83.55 (1), Wis. Adm. Code, to the governmental unit or designated agent.
    A. True
    B. False

B. Approvals and Inspections:

45. Design approval and site inspections before, during and after construction are conducted by the governmental unit or other appropriate jurisdiction(s) in accordance with ss. Comm 83.22 and 83.26, Wis. Adm. Code.
    A. True
    B. False

C. Performance Expectations

46. Maintenance cycle. The holding tank must be serviced by certified septage operators (pumpers). An alarm system must be installed to activate when the liquid level in a single tank is within 12 inches of the inlet invert or when the total volume of the tankage of multiple tanks reaches 100%.
    A. True
    B. False
47. Performance monitoring. Within 30 calendar days from the date of an inspection, maintenance or servicing event, the owner of the POWTS or the owner's agent shall file a report with the governmental unit or designated agent.
    A. True

B. False

D. User's Manual:

48. A user's manual is to accompany the component. The manual is to contain the following as a minimum:
    A. Diagrams of all components and their location.
    B. Names and phone numbers of local governmental unit authority, component manufacturer or POWTS service provider to be contacted in the event of component failure or malfunction.
    C. A management plan that contains information on the periodic inspection, maintenance or servicing of the component, including electrical/mechanical components.
    D. All of the above
    E. Only A & C

VII. PLAN SUBMITTAL AND INSTALLATION INSPECTION

A. Plan Submittal

49. In order to install a POWTS correctly, it is important to develop plans that will be used to guide the installation. The following checklist may be used when preparing plans for review. Conformance to the list is a guarantee of plan approval.
    A. True
    B. False
50. Additional information may be needed or requested to address unusual or unique characteristics of a particular project. Contact the reviewing agency for specific plan submittal requirements, which may be different than the list included in this manual.
    A. True
    B. False

B. General Submittal Information:

51. Legible photocopies of reports, forms, plans, and other documents are acceptable. However, any type of a faxed signature is allowed on certain documents (e.g. index page).
    A. True
    B. False
52. Submittal of additional information requested during plan review or questions concerning a specific plan must be referenced to the identification number assigned to that plan by the reviewing agency.
    A. True
    B. False
53. Plans or documents must be permanent, legible copies or originals.
    A. True
    B. False

C. Forms and Fees:

54. A current version of a completed Application For Review form, (SBD-10577) along with proper fees must be included with plans submitted to the department. An application form can be downloaded at www.commerce.wi.gov. If plans are to be submitted to a designated town plan review agent, the town agent should be contacted for information regarding application forms and fees.
    A. True
    B. False

D. Soils Related Information:

55. Soils Related Information include?
    A. A holding tank is a component that does not utilize in situ soil for treatment or dispersal of wastewater; therefore a soil test is not required per s. Comm 83.44 (1), Wis. Adm. Code.
    B. Pertinent flood plain areas and OHWM designations of navigable waters of the state shall be shown on a soil test and/or the system plot plan.
    C. A soil test may be required (one borehole at tank location) for the evaluation of saturated soil depths if tank anchoring is a concern.
    D. Section Comm 83.32(2), Wis. Adm. Code, allows municipalities to prohibit or limit holding tanks. These municipalities may require a complete soil test by ordinance to verify that a holding tank is the only option available.
    E. all of the above
56. Documentation requirements include?
    A. Architects, engineers or designers shall sign, seal and date each page of the submittal or sign, seal and date an index page, which is attached to the bound set.
    B. Master Plumbers and Master Plumbers-Restricted Service shall, sign, date and include their license number on each page of the submittal or sign and date an index page which is attached to each bound set .
    C. At least three sets of plans and one set of specifications (clear, permanent and legible) shall be submitted to the department. Submittals must be on paper measuring at least 8-1/2 by 11 inches. Each plan set shall be bound using staples, brads or other permanent fasteners. Pages which are held together by rubber bands and/or paper clips are not considered to be a bound volume.
    D. all of the above
57. Plot Plan information includes?
    A. Dimensioned plans or plans drawn to scale (scale indicated on plans) with property lines, parcel size, and property boundaries clearly marked.
    B. Benchmark and north arrow.
    C. Elevations when the bottom of the furthest tank is proposed to be located more than 15 feet below the elevation where the all-weather road is to be provided.
    D. All of the above
58. Plot Plan information includes?
    A. Information showing that the access opening of the furthest tank is located not more than 25 feet horizontally from where the all-weather road is to be provided.
    B. Pertinent existing and proposed buildings, wells, water lines, swimming pools, flood plain location and elevation and OHWM designations of navigable waters.

C. Location information; legal description (down to 40 acres and/or subdivision), block and lot number of platted lands.
D. All of the above

I. Septage Disposal:

59. Estimated daily wastewater flows greater than _____ gpd, shall include information pursuant to s. NR 113.07(1)(e), Wis. Adm. Code. Written notification from the Department of Natural Resources shall be provided confirming agreement from a publicly owned treatment work to accept the contents from the holding tank.
    A. 1000
    B. 2000
    C. 3000
    D. 4000

J. Inspections:

60. Inspection(s) shall be made in accordance with ch. 145.20, Wis. Stats., and s. Comm 83.26, Wis. Adm. Code. The inspection form on the following two pages may be used.
    A. True
    B. False
61. The inspection of the POWTS installation is to verify that the POWTS conforms to specifications listed in Table _____ of this manual and the approved plans.
    A. 1
    B. 2
    C. 3
    D. both A & B
62. Wastewater flows listed in Table 3 are used for:
    A. Private systems
    B. Residential systems
    C. Public Systems
    D. none of the above

To obtain your Continuing Education Credits follow the below instructions.

1. Click on course, print out, circle answers, mail in the course only & keep the manual.
2. Fill in all fields applicable.
3. Include your certification or license number.
4. We'll take care of crediting with the state and mailing back to you the quiz results.

Send by mail www.garyklinka.com

1. Answer sheets. **Fee $55.00**
2. Fill out this form below completely.
3. Applicable fees by check payable to Gary Klinka.
4. Mail to: Gary Klinka at 228 Mandella Ct Neenah WI 54956.
5. Questions: office 920-727-9200 fax 888-727-5704 including Saturday and Sundays.
6. Cell 920-740-4119 or 920-740-6723 & by email garyklinka@hotmail.com

----------Educational Course Attendance Verification Form ----------

Attendee's Name_____ Date _____

Address_____

Credential Number_____ Phone#_____

Course Title and Name Holding Tank Quiz Fax#_____

List the name of each credential held by attendee_____

_____ Credited Hours 6 hours **Fee $55.00**

Email _____

To be completed by Gary Klinka My credential link #70172

Course Password_____ Course ID# 8402

Attendee passed the course with a greater than 70% score on Date_____

Instructor Signature_____

HOLDING TANK COMPONENT MANUAL
FOR PRIVATE ONSITE WASTEWATER TREATMENT SYSTEMS
(VERSION 2.0)

State of Wisconsin
Department of Commerce
Division of Safety and Buildings

SBD-10855-P (N. 03/07)

Table of Contents

I. INTRODUCTION AND SPECIFICATIONS 3

II. DEFINITIONS. 4

III. DESCRIPTION AND PRINCIPLE OF OPERATION. 4

IV. DESIGN 5

V. SITE PREPARATION AND CONSTRUCTION 5

VI. OPERATION, MAINTENANCE AND PERFORMANCE MONITORING 6

VII. PLAN SUBMITTAL AND INSTALLATION INSPECTION 7

POWTS HOLDING TANK INSPECTION REPORT 10

TABLE 3 - PUBLIC FACILITY WASTEWATER FLOWS 12

Published on March 01, 2007 by
Dept. of Commerce
Division of Safety and Buildings
Safety and Buildings Publication SBD-10855-P

ADA Statement

The Department of Commerce is an equal opportunity service provider and employer. If you need assistance to access services or need material in an alternate format, please contact the Department at (608) 266-3151 or TTY (608) 264-8777.

I. INTRODUCTION AND SPECIFICATIONS

This Private Onsite Wastewater Treatment System (POWTS) component manual provides design, construction, inspection, operation, and maintenance specifications for a prefabricated or site constructed holding tank component that has a current plumbing product approval from the Department. Site constructed holding tank components that do not have plumbing product approval must be submitted as an individual site design. Violations of this manual constitute a violation of chs. Comm 83 and 84, Wis. Adm. Code.

Note: Detailed plans and specifications must be developed, and submitted for review and approval to the governing unit having plan review authority. In addition, a state Sanitary Permit must be obtained from the department or governmental unit having jurisdiction. See Section VII for more details.

Table 1 **SIZE AND LOCATION**	
Holding capacity	≥ 5 times estimated daily wastewater flow or 2000 gals, whichever is greater
Horizontal setback distances	Meet s. Comm 83.43 (8) (i), Wis. Adm. Code
Location of service access opening	≤ 25 feet to an all-weather road measured from the furthest service access opening or pump out port.

Table 2 **OTHER SPECIFICATIONS**	
Tank design and construction	Meets s. Comm 84.25, Wis. Adm. Code
Alarm or warning system	Meets s. Comm 83.43(8)(e)2. and s. Comm 84.25 (10), Wis. Adm. Code
Metering	When specifically required, meets s. Comm 83.54 (2), Wis. Adm. Code
Installation in soils that indicate periodic or constant saturation.	Meets s. Comm 83.43 (8) (g), Wis. Adm. Code.
Installation inspection	In accordance with ch. Comm 83, Wis. Adm. Code
Management	In accordance with ch. Comm 83, Wis. Adm. Code and this manual
Piping materials for vents	≥ 2" I.D. pipe constructed of materials listed in ch. Comm 84, Table 84.30-1, Wis. Adm. Code.
Vent Location and Orientation	Meets s. Comm 82.31(16)(d)2. and s. Comm 83.45(6)(b), Wis. Adm. Code. Vent openings are oriented down.

II. DEFINITIONS.

Definitions not found in this section are located in chapter Comm 81, Wis. Adm. Code, or the terms use the standard dictionary definition.

1. "Service provider" means the individual or company that is responsible for inspecting, maintaining or servicing the holding tank system.

2. "All-weather road" means a gravel or paved surface that can support a fully loaded pump truck in all seasons.

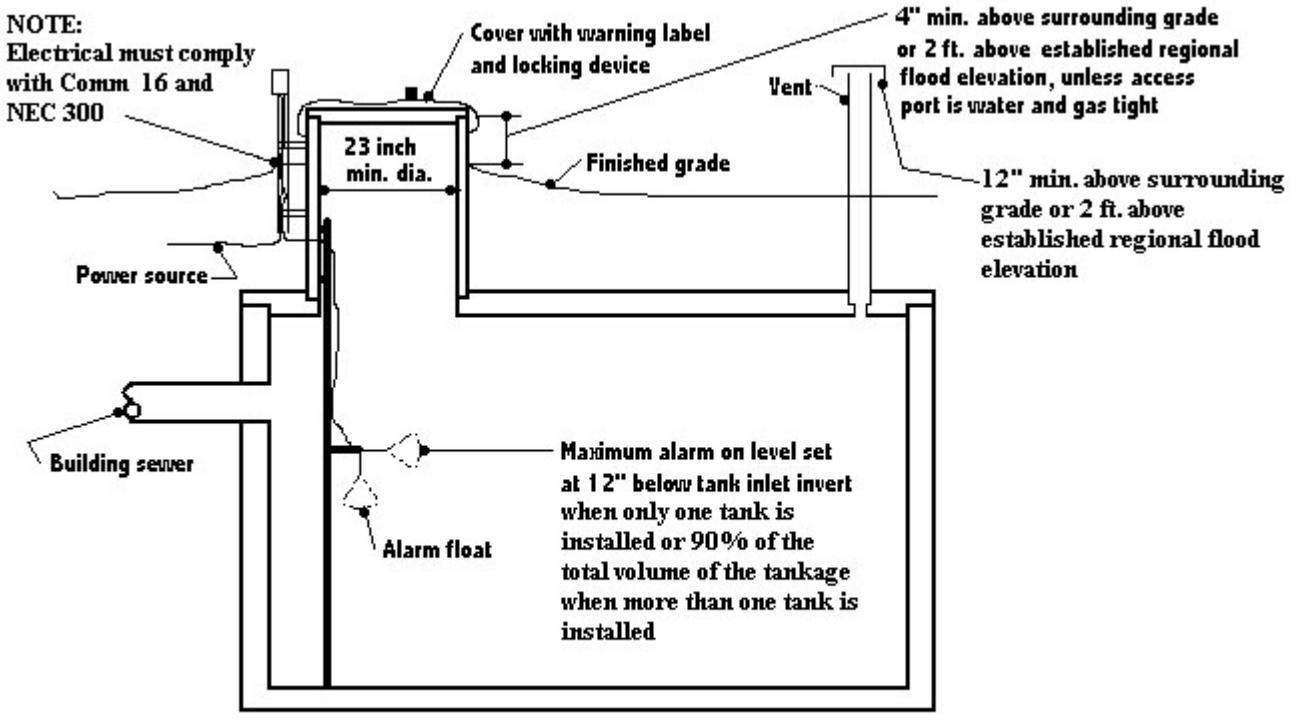
III. DESCRIPTION AND PRINCIPLE OF OPERATION.

The POWTS holding tank serves to contain wastewater or sewage on site until the contents are pumped and hauled to a proper point of disposal. Pumping and monitoring reports are submitted to the governmental unit or designated agent.

The holding tank installed under this component manual holds domestic wastewater, stormwater or clearwater inclusions permitted under s. Comm 82.36, Wis. Adm. Code, until pumped by an individual certified as a septage servicing operator under ch. NR 114, Wis. Adm. Code. See Figure 1 for an example of a typical holding tank.

Industrial wastewater is regulated by the Department of Natural Resources (DNR), and is not included in this specification, unless approved by the DNR in advance.

Figure 1 – Cross-section of Holding Tank


NOTE:
Electrical must comply with Comm 16 and NEC 300
Cover with warning label and locking device
4" min. above surrounding grade or 2 ft. above established regional flood elevation, unless access port is water and gas tight
Vent
23 inch min. dia.
Finished grade
12" min. above surrounding grade or 2 ft. above established regional flood elevation
Power source
Building sewer
Maximum alarm on level set at 12" below tank inlet invert when only one tank is installed or 90% of the total volume of the tankage when more than one tank is installed
Alarm float

Cross-Section of Holding Tank

IV. DESIGN

A. Tank Size:

1. One- and Two-family Dwellings. The minimum liquid capacity of a holding tank for one- and two-family dwelling applications shall not be less than 2000 gallons or 5 times the estimated daily wastewater flow determined in accordance with s. Comm 83.43(3), (4), or (5), Wis. Adm. Code, whichever is greater.

2. Public Facilities. The minimum liquid capacity of a holding tank for public facilities shall not be less than 2000 gallons or 5 times the estimated daily wastewater flow determined in accordance with s. Comm 83.43(6), Wis. Adm. Code or Table 3 whichever is greater. Estimated flows for facilities not listed in Table 3 shall be provided pursuant to s. Comm 83.43(6), Wis. Adm. Code.

B. Tank Anchoring:

When a holding tank may be installed in saturated soils (see ch. Comm 85, Wis. Adm. Code, for information on how to determine soil saturation) and/or in an area that is considered part of a 100 year flood plain, the tank shall meet the provisions of s. Comm 83.43(8)(g), Wis. Adm. Code.

See chapter Comm 83, Wis. Adm. Code, Appendix for examples of anchoring calculations.

C. Monitoring/Management Equipment:

The alarm for the holding tank installation is an audible and/or visual alarm installed in a conspicuous location in or on the building served or on a post near the tank. The alarm is connected to a float switch or other electrical sensor in the holding tank. The maximum alarm on level is set at 12 inches below the tank inlet when only one tank is used or 90% of the total volume of the tankage when more than one tank is used.

V. SITE PREPARATION AND CONSTRUCTION

A. Sanitary Permit:

Prior to the construction of the system, a state sanitary permit shall be obtained and posted in a clearly visible location on the site. Arrangements for inspection(s) must be made with the governmental unit that issues the state sanitary permit. When a POWTS is located or will be located on property owned by the state, the sanitary permit shall be obtained from the department. Arrangements for inspection(s) shall be made with the department.

B. Site Preparation and Tank Installation:

The holding tank must be installed in accordance with the manufacturer's printed instructions, product approval, plan approval and specifications in this component manual. If there is a conflict between the manufacturer's instructions and the product approval, plan approval and/or component manual specifications, the product approval, plan approval and/or component manual specifications take precedence.

1. The tank shall be set level.

2. Access openings that terminate at grade and/or less than 2 ft. above the established regional flood elevation (if applicable) must have water tight access openings. Access openings that terminate at least 4 inches above the surrounding grade and 2 ft. above the established regional flood elevation (if applicable) are not required to have water tight access openings.

   Access opening covers that terminate at or above grade may be provided with a service port that is 8 inches inside diameter. The reduced opening must have a locking device or a brass cleanout plug. Service ports larger than 8 inches inside diameter must have a locking device in accordance with s. Comm 84.25(7)(h), Wis. Adm. Code.

3. All access openings shall be located so as to permit a minimum of 3 feet of clear space above the opening and 2 feet in all directions horizontally from any point of the access opening for purposes of inspection, maintenance or servicing. Access openings within 10 feet of any building shall also be gas tight.

4. The connection of the holding tank to the sanitary sewer shall be by means of a mechanical joint, solvent cement joint or other joint conforming to s. Comm 84.40, Wis. Adm. Code.

5. Below grade connections. Joints between the tank, access opening risers, and covers shall be watertight.

C. Alarm Equipment Installation:

The alarm switch shall be set to activate an alarm when liquid volume is 12" below the tank inlet invert or at 90% of the liquid capacity of the tank below the tank inlet invert. All wiring shall be installed in accordance with National Electrical Code (NEC) Article 300 and s. Comm 16.23, Wis. Adm. Code.

D. Backfill:

The holding tank excavation is backfilled as per manufacturer instructions with sufficient soil material, so as to divert surface water runoff away from the tank location.

VI. OPERATION, MAINTENANCE and PERFORMANCE MONITORING

A. Owner is Responsible:

The POWTS owner is responsible for the operation and maintenance of the POWTS locking device, alarm and access opening. The owner or owner's agent is required to submit reports as required by s. Comm 83.55 (1), Wis. Adm. Code, to the governmental unit or designated agent.

B. Approvals and Inspections:

Design approval and site inspections before, during and after construction are conducted by the governmental unit or other appropriate jurisdiction(s) in accordance with ss. Comm 83.22 and 83.26, Wis. Adm. Code.

C. Performance Expectations:

1. Maintenance cycle. The holding tank must be serviced by certified septage operators (pumpers). An alarm system must be installed to activate when the liquid level in a single tank is within 12 inches of the inlet invert or when the total volume of the tankage of multiple tanks reaches 90%.

2. Performance monitoring. Within 30 calendar days from the date of an inspection, maintenance or servicing event, the owner of the POWTS or the owner's agent shall file a report with the governmental unit or designated agent.

D. User's Manual:

A user's manual shall accompany the POWTS component and be provided to the owner following installation. At a minimum, the manual shall contain the following information:

1. Diagram(s) of all components and their locations.

2. Names and phone numbers of local governmental unit authority, component manufacturer or POWTS service provider to be contacted in the event of component failure or malfunction.

3. A management plan that contains information on the periodic inspection, maintenance or servicing of the component, including electrical/mechanical components.

VII. PLAN SUBMITTAL AND INSTALLATION INSPECTION

A. Plan Submittal:

In order to install a POWTS correctly, it is important to develop plans that will be used to guide the installation. The following checklist may be used when preparing plans for review. Conformance to the list is not a guarantee of plan approval. Additional information may be needed or requested to address unusual or unique characteristics of a particular project. Contact the reviewing agency for specific plan submittal requirements, which may be different than the list included in this manual.

B. General Submittal Information:

1. Legible photocopies of reports, forms, plans, and other documents are acceptable. However, an original signature is required on certain documents (e.g. index page).

2. Submittal of additional information requested during plan review or questions concerning a specific plan must be referenced to the identification number assigned to that plan by the reviewing agency.

3. Plans or documents must be permanent, legible copies or originals.

C. Forms and Fees:

A current version of a completed Application For Review form, (SBD-10577) along with proper fees must be included with plans submitted to the department. An application form can be downloaded at www.commerce.wi.gov. If plans are to be submitted to a designated county plan review agent, the agent should be contacted for information regarding application forms and fees.

D. Soils Related Information:

1. A holding tank is a component that does not utilize in situ soil for treatment or dispersal of wastewater; therefore a soil test is not required per s. Comm 83.44 (1), Wis. Adm. Code.

2. Pertinent flood plain areas and OHWM designations of navigable waters of the state shall be shown on a soil test and/or the system plot plan.

3. A soil test may be required (one borehole at tank location) for the evaluation of saturated soil depths if tank anchoring is a concern.

4. Section Comm 83.32(2), Wis. Adm. Code, allows municipalities to prohibit or limit holding tanks. These municipalities may require a complete soil test by ordinance to verify that a holding tank is the only option available.

E. Documentation Requirements:

1. Architects, engineers or designers shall sign, seal and date each page of the submittal or sign, seal and date an index page, which is attached to the bound set.

2. Master Plumbers and Master Plumbers-Restricted Service shall, sign, date and include their license number on each page of the submittal or sign and date an index page which is attached to each bound set .

3. At least three sets of plans and one set of specifications (clear, permanent and legible) shall be submitted to the department. Submittals must be on paper measuring at least 8-1/2 by 11 inches. Each plan set shall be bound using staples, brads or other permanent fasteners. Pages which are held together by rubber bands and/or paper clips are not considered to be a bound volume.

F. Plot Plan Information:

1. Dimensioned plans or plans drawn to scale (scale indicated on plans) with property lines, parcel size, and property boundaries clearly marked.

2. Benchmark and north arrow.

3. Elevations when the bottom of the furthest tank is proposed to be located more than 15 feet below the elevation where the all-weather road is to be provided.

4. Information showing that the access opening of the furthest tank is located not more than 25 feet horizontally from where the all-weather road is to be provided.

5. Pertinent existing and proposed buildings, wells, water lines, swimming pools, flood plain location and elevation and OHWM designations of navigable waters.

6. Location information; legal description (down to 40 acres and/or subdivision), block and lot number of platted lands.

G. System Sizing:

1. For one- and two-family dwellings the number of bedrooms shall be included.

2. For public facilities, the sizing calculations shall be included.

H. Tank Information:

1. Construction details for site-constructed tanks. (Note: site constructed tanks that do not have a valid plumbing product approval are not included within the scope of this manual and must be submitted as individual site designs)

2. Size, model number and manufacturer information for prefabricated tank(s).

3. Installation information must include vent and access opening locations, depth to inlet; and height/elevation of freeboard, if applicable.

4. Anchoring information shall be provided whenever a tank is located within the 100-year floodplain and/or the depth to seasonal soil saturation indicates anchoring is necessary to prevent flotation of the tank.

5. Cross section of tank (or tanks to be installed in series), with information regarding liquid depth, depth of high water alarm, approved joints and any modifications (suction pipes, etc.) clearly marked.

I. Septage Disposal:

Estimated daily wastewater flows greater than 3,000 gpd, shall include information pursuant to s. NR 113.07(1)(e), Wis. Adm. Code. Written notification from the Department of Natural Resources shall be provided confirming agreement from a publicly owned treatment work to accept the contents from the holding tank.

J. Inspections:

Inspection(s) shall be made in accordance with ch. 145.20, Wis. Stats., and s. Comm 83.26, Wis. Adm. Code. The inspection form on the following two pages may be used. The inspection of the POWTS installation is to verify that the POWTS conforms to specifications listed in Tables 1 and 2 of this manual and the approved plans.

POWTS HOLDING TANK INSPECTION REPORT

(ATTACH TO PERMIT)

GENERAL INFORMATION

Permit Holder's Name	☐ City ☐ Village ☐ Town of	County	Sanitary Permit No.
Plan ID No.	Tax Parcel No.	Property Address if Available	

TANK INFORMATION

TYPE	MANUFACTURER/MODEL #	CAPACITY

SETBACKS

Property Line	Well	Water Service	Building	All-Weather Road	OHWM	Swimming Pool

DEVIATIONS FROM APPROVED PLAN

COMMENTS (Persons present, discrepancies, etc.)

COMPONENTS NOT INSPECTED

Plan Revision Required ☐ Yes ☐ No	Date:	Signature of Inspector:	Cert. Number

Sketch on other side

ELEVATION DATA

Point	Backsight	Height of Instrument	Foresight	Elevation	Comments
Bench mark					
Bldg. sewer					
Tank inlet					
Tank outlet					
Tank inlet					
Tank outlet					
Bottom of furthest tank					
Top of all-weather road					

SKETCH OF COMPONENT & ADDITIONAL COMMENTS

Table 3 - Public Facility Wastewater Flows		
Source	Unit	Estimated Wastewater Flow (gpd)
Apartment or Condominium	Bedroom	100
Assembly hall (no kitchen)	Person (10 sq. ft./person)	1.3
Bar or cocktail lounge (no meals served)	Patron (10 sq. ft./patron)	4
Bar or cocktail lounge* (w/meals - all paper service)	Patron (10 sq. ft./patron)	8
Beauty salon	Station	90
Bowling alley	Bowling lane	80
Bowling alley (with bar)	Bowling lane	150
Camp, day and night	Person	25
Camp, day use only (no meals served)	Person	10
Campground or Camping Resort	Space, with sewer connection and/or service building	30
Campground sanitary dump station	Camping unit or RV served	25
Catch basin	Basin	65
Church (no kitchen)	Person	2
Church* (with kitchen)	Person	5
Dance hall	Person (10 sq. ft./person)	2
Day care facility (no meals prepared)	Child	12
Day care facility* (with meal preparation)	Child	16
Dining hall* (kitchen waste only without dishwasher and/or food waste grinder)	Meal served	2
Dining hall* (toilet and kitchen waste without dishwasher and/or food waste grinder)	Meal served	5
Dining hall* (toilet and kitchen waste with dishwasher and/or food waste grinder)	Meal served	7
Drive-in restaurant* (all paper service with inside seating)	Patron seating space	10
Drive-in restaurant* (all paper service without inside seating)	Vehicle space	10
Drive-in theater	Vehicle space	3
Employees (total all shifts)	Employee	13
Floor drain (not discharging to catch basin)	Drain	25
Gas station / convenience store	Patron (min. 500 patrons)	3
Gas station (with service bay) Patron Service bay	 Patron Service bay	 3 50
Hospital*	Bed space	135
Hotel, motel or tourist rooming house	Room	65
Medical office building Doctors, nurses, medical staff Office personnel Patients	 Person Person Person	 50 13 6.5
Migrant labor camp (central bathhouse)	Employee	20

* May be high strength waste

Table 3 Public Facility Wastewater Flows (continued)		
Source	Unit	Estimated Wastewater Flow (gpd)
Mobile Home (Manufactured home) (served by its own POWTS)	Bedroom	100
Mobile home park	Mobile home site	200
Nursing, Rest Home, Community Based Residential Facility	Bed space	65
Outdoor sport facilities (toilet waste only)	Patron	3.5
Parks (toilets waste only)	Patron (75 patrons/acre)	3.5
Parks (toilets and showers)	Patron (75 patrons/acre)	6.5
Public shower facility	Shower taken	10
Restaurant*, 24-hr. (dishwasher and/or food waste grinder only)	Patron seating space	4
Restaurant*, 24-hr. (kitchen waste only without dishwasher and/or food waste grinder)	Patron seating space	12
Restaurant, 24-hr. (toilet waste)	Patron seating space	28
Restaurant*, 24-hr. (toilet and kitchen waste without dishwasher and/or food waste grinder)	Patron seating space	40
Restaurant*, 24-hr. (toilet and kitchen waste with dishwasher and/or food waste grinder)	Patron seating space	44
Restaurant* (dishwasher and/or food waste grinder only)	Patron seating space	2
Restaurant* (kitchen waste only without dishwasher and/or food waste grinder)	Patron seating space	6
Restaurant (toilet waste)	Patron seating space	14
Restaurant* (toilet and kitchen waste without dishwasher and/or food waste grinder)	Patron seating space	20
Restaurant* (toilet and kitchen waste with dishwasher and/or food waste grinder)	Patron seating space	22
Retail store	Patron (70% of total retail area ÷ 30 sq. ft. per patron)	1
School* (with meals and showers)	Classroom (25 students/classroom)	500
School* (with meals or showers)	Classroom (25 students/classroom)	400
School (without meals or showers)	Classroom (25 students/classroom)	300
Self-service laundry (toilet waste only)	Clothes washer	33
Self-service laundry (with only residential clothes washers)	Clothes washer	200
Swimming pool bathhouse	Patron	6.5

* May be high strength waste